

## DIO2 (D-19): sc-69559

### BACKGROUND

DIO2 (deiodinase, iodothyronine, type II), also known as D2, 5DII, SelY, TXDI2 or ITDI2, is a 273 amino acid single-pass selenoprotein that belongs to the iodothyronine deiodinase family and localizes to the membrane. Expressed in muscle, heart, brain, thyroid, placenta and skeletal muscle, DIO2 functions to activate thyroid hormone (TH) by catalyzing the outer ring deiodination of the prohormone thyroxine (T4) to bioactive 3,3',5-triiodothyronine (T3), a reaction that is essential for providing the appropriate levels of T3 during brain development. Overexpression of DIO2 is associated with an increase in thyroidal T3 production in patients with Graves disease and thyroid adenomas, both of which are thyroid disorders. Defects in the gene encoding DIO2 may be associated with osteoarthritis, McCune-Albright syndrome and hypertension. DIO2 is expressed as two alternatively spliced isoforms, designated hDII- $\alpha$  and hDII- $\beta$ .

### REFERENCES

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3. Maia, A.L., et al. 2005. Type 2 iodothyronine deiodinase is the major source of plasma T3 in euthyroid humans. *J. Clin. Invest.* 115: 2524-2533.
4. Gereben, B., et al. 2005. Pretranslational regulation of type 2 deiodinase. *Thyroid* 15: 855-864.
5. de Jong, F.J., et al. 2007. The association of polymorphisms in the type 1 and 2 deiodinase genes with circulating thyroid hormone parameters and atrophy of the medial temporal lobe. *J. Clin. Endocrinol. Metab.* 92: 636-640.
6. Kanou, Y., et al. 2007. Thyroglobulin gene mutations producing defective intracellular transport of thyroglobulin are associated with increased thyroidal type 2 iodothyronine deiodinase activity. *J. Clin. Endocrinol. Metab.* 92: 1451-1457.
7. Mebis, L., et al. 2007. The type II iodothyronine deiodinase is up-regulated in skeletal muscle during prolonged critical illness. *J. Clin. Endocrinol. Metab.* 92: 3330-3333.
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9. Celi, F.S., et al. 2008. The role of type 1 and type 2 5'-deiodinase in the pathophysiology of the 3,5,3'-triiodothyronine toxicosis of McCune-Albright syndrome. *J. Clin. Endocrinol. Metab.* 93: 2383-2389.

### CHROMOSOMAL LOCATION

Genetic locus: DIO2 (human) mapping to 14q31.1; Dio2 (mouse) mapping to 12 D3.

### SOURCE

DIO2 (D-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of DIO2 of human origin.

### PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-69559 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

DIO2 (D-19) is recommended for detection of DIO2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

DIO2 (D-19) is also recommended for detection of DIO2 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for DIO2 siRNA (h): sc-77148, DIO2 siRNA (m): sc-77149, DIO2 shRNA Plasmid (h): sc-77148-SH, DIO2 shRNA Plasmid (m): sc-77149-SH, DIO2 shRNA (h) Lentiviral Particles: sc-77148-V and DIO2 shRNA (m) Lentiviral Particles: sc-77149-V.

Molecular Weight of DIO2: 31 kDa.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

### STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

### RESEARCH USE

For research use only, not for use in diagnostic procedures.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.